SURVEYS
SURVEYS
SURVEYS

Manitoba
Culture, Heritage
and Recreation
Recreation

"Are you (a) contented, (b) happy, (c) very happy, (d) wildly happy, (e) deliriously happy?"

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INTRODUCTION

The most widely used and abused information gathering system is the survey or questionnaire. When carefully thought out, tested and followed through, a survey can provide you with vital information about needs, problems and potential problems.

There are no absolute rules for conducting a survey. Often experience must be gained through trial and error, but much of the guesswork can be eliminated by careful thought and good preparation.

The information in this manual will serve as a reference regarding survey use and construction. Although no manual will ever replace experienced and knowledgeable people, what it can do is provide guidelines to help alleviate needless mistakes and inconsistencies.

This manual was written as a resource for community volunteer organizations and recreation professionals. I hope it will prove to be useful.

Lenore Laverty
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ADVANTAGES OF SURVEYS

* ability to accurately describe characteristics of large populations
* flexibility
* clarity and standardization of questions
* useful for gathering information about a respondent's past history

DISADVANTAGES OF SURVEYS

* flexibility can be limited by the format of questions and interview schedules
* standardization of questions poses a problem in that questions must use the "lowest common denominator" principle and thus appear too simple to some respondents
* could be exepnsive
* cannot be used effectively on some populations
* ratio of returned surveys is often low
* not appropriate for determining causes

Figure 1. ADVANTAGES AND DISADVANTAGES OF SURVEYS

SURVEYS

WHAT IS SURVEY?

A survey is any method of collecting information directly from a respondent as opposed to methods of gathering information through the use of agency records, program brochures, newspaper articles, annual reports and so on. Three types of surveys will be discussed in this manual:

mail surveys
personal interview surveys
telephone surveys

The purpose of most surveys conducted by culture, heritage and recreation groups is to determine the leisure habits and interests of citizens, as well as their opinions and attitudes toward community services.

Additionally, surveys may:

1. help to increase community involvement in decision making,

2. help to provide staff, volunteers and residents with a better understanding of culture, heritage and recreation.

The growing popularity of surveys has led to a tendency to overlook the fact that surveys can involve many technical problems. Depending on your topic and objectives, you may discover that a survey is not suitable for your purposes.

A survey is not always the most appropriate method to collect information; they are not the answer to all data gathering problems. (See Figure 1). They are time consuming and can be expensive, so be certain that a survey is necessary.

Surveys should be developed only after a lot of careful thinking about the problem being investigated. (See Figure 2). A common flaw is that surveys are sometimes conducted because their answers will be "interesting". Interesting or not, these results are often meaningless and not worth the money and time spent in obtaining them.

To help decide if a survey is necessary, first consider your objectives and decide if the required information can be obtained through some other means. If not, give some thought to the target population, sample size and cost of the survey to ensure it will be feasible.

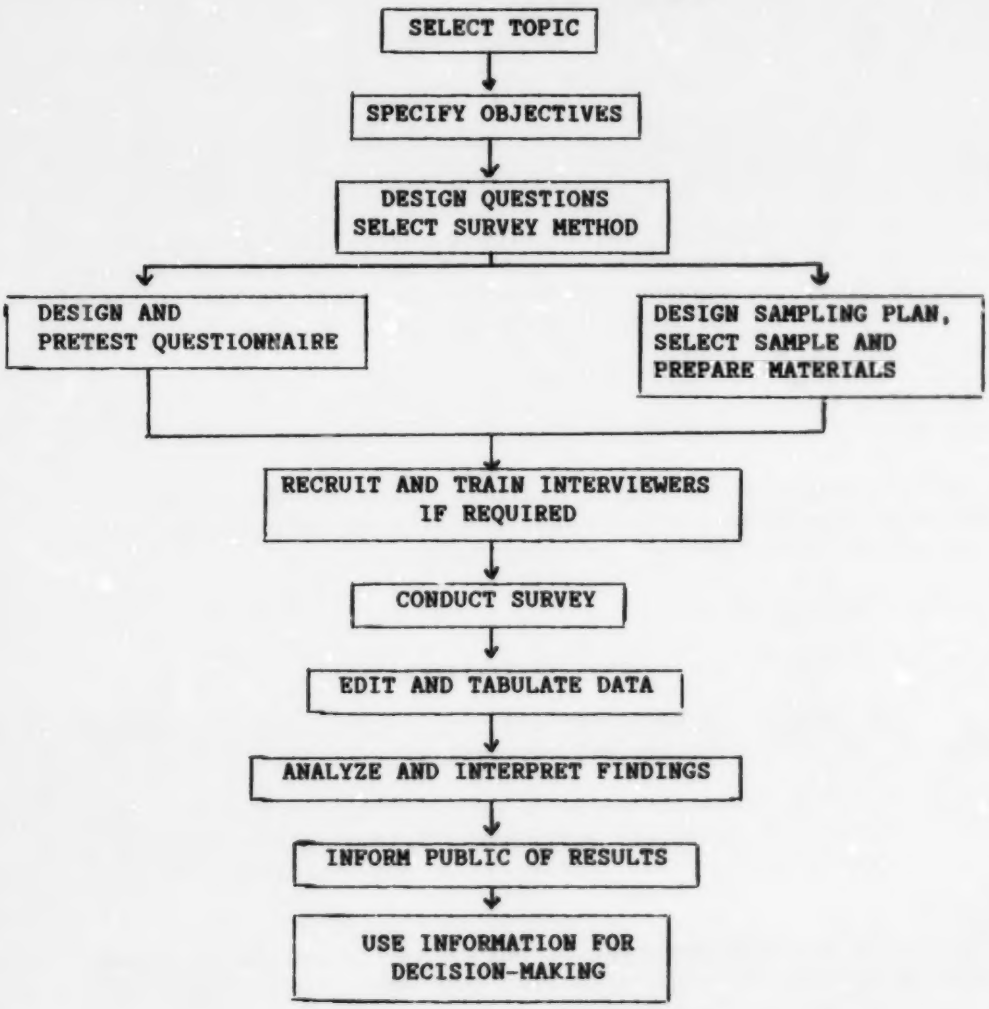

Figure 2. TYPICAL STEPS IN THE SURVEY PROCESS

Once the decision to conduct a survey has been made, attention should turn to many practical questions such as:

- Mail, personal interview or telephone interview?
- How will the sample be drawn?
- When should the survey be conducted?
- How quickly can the survey be completed?
- How much will it cost?
- How long should the survey be?

Whether to conduct the survey by mail, over the telephone or through personal interview is a major decision. Which is the best method to obtain reliable information? It depends!!!

MAIL SURVEYS are distinguished by the fact respondents complete the questionnaires themselves. PERSONAL and TELEPHONE INTERVIEWS focus on having the data collected by an interviewer. Each of the three survey methods involve the researcher/ respondent in a slightly different relationship. This affects the choice of the method and its success.

Basically there are three factors involved in deciding which survey method to use. These are:

1. **COST:**

Cost is a primary factor that restricts the use of any type of survey. Many factors affect cost such as duplicating, postage, interviewer training, travel costs, long distance telephone charges and so on. It is advisable to also calculate the cost of staff and volunteer time required to organize, prepare and conduct the survey. (See Figure 3).

FACTOR	TYPE OF INTERVIEW		
	MAIL OUT	TELEPHONE	FACE-TO-FACE
COST	LOW COST	MEDIUM COST	HIGH COST
RESPONSE RATE	USUALLY POOR	USUALLY GOOD	USUALLY GOOD
REPRESENTATIVES	USUALLY POOR	USUALLY GOOD IF RANDOM DIALING IS USED QUESTIONABLE WITH PHONE BOOK	USUALLY GOOD
INTERVIEW ATTENTION SPAN	UP TO 15 MINUTES	UP TO 30 MINUTES	UP TO 1 HOUR
INTERVIEW MANHOUR REQUIREMENTS	NONE	MODERATE	EXTENSIVE
EASE OF WORKLOAD SCHEDULING	GOOD	GOOD	POOR

Figure 3. COMPARISON OF CITIZEN SURVEY METHODS

2. **RESPONSE RATE:**

Response rate refers to that portion of the sample that can be persuaded to respond. The response rate to the various survey types differs greatly.

3. **NATURE OF THE QUESTIONS BEING ASKED:**

If the questions involve "normal" issues that people do not mind making public, mail-out questionnaires are usually sufficient. For more private or controversial issues where people may be reluctant to respond, interviews may be more appropriate. Generally, interviews can be more extensive than mail-out questionnaires.

A Sample Size Table for Proportions

Degree of Accuracy = ±.05		Proportion of Sample Size = 0.5		Confidence Level = 95%	
Population	Sample	Population	Sample	Population	Sample
10	9	230	144	1400	301
15	14	240	147	1500	305
20	19	250	151	1600	309
25	23	260	155	1700	313
30	27	270	158	1800	316
35	32	280	162	1900	319
40	36	290	165	2000	322
45	40	300	168	2200	327
50	44	320	174	2400	331
55	48	340	180	2600	334
60	52	360	186	2800	337
65	55	380	191	3000	340
70	59	400	196	3500	346
75	62	420	200	4000	350
80	66	440	205	4500	354
85	69	460	209	5000	356
90	73	480	213	6000	361
95	76	500	217	7000	364
100	79	550	226	8000	366
110	85	600	234	9000	368
120	91	650	241	10000	369
130	97	700	248	15000	374
140	102	750	254	20000	376
150	108	800	259	30000	379
160	113	850	264	40000	380
170	118	900	269	50000	381
180	122	950	273	60000	381
190	127	1000	277	70000	382
200	131	1100	284	120000	382
210	136	1200	291	160000	383
220	140	1300	296	1,000,000	383

*This table tells you the number of people you must survey to accurately represent the views of the population under study. Accurate here means reliable at the .005 reliability level. In other words, the chances of the results being funky is 5/100.

Figure 4. ESTIMATED SAMPLE SIZE

SAMPLING

CENSUS VS SAMPLING

Census Surveys - involve the collection of information from only the entire population.

Sample Surveys - involve the collection of information from only a part of a population.

A CENSUS survey gathers information from every unit in the group you wish to study. An example is the Canada Census, which gathers information on every individual in the country. Unlike the census, a SAMPLE survey gathers information from a relatively small number of people. Surprisingly, a well constructed and conducted sample survey can be as accurate as a census, and it is less costly and time consuming.

In a bonafide survey, the sample is not selected haphazardly or only from persons who are willing to volunteer answers. Rather, the sample is carefully and methodically chosen so that each person in the population has an equal chance of selection. In this way, the results can be projected to the larger population.

DETERMINING SAMPLE SIZE

One of the first considerations in planning a sample survey is the size of the sample, that is, the number of people to be surveyed. Since every survey and circumstance is different there is no simple rule that can be used to calculate the sample size for all surveys. Generally, the factors that decide sample size have to do with cost, time, operational constraints and the desired precision of results.

The precision of the results is an area that requires too technical an explanation to go into in this manual. If you wish to find out more about sampling errors, any textbook on basic statistics will explain these procedures in detail.

Contrary to popular belief, the size of a sample does not increase in proportion to population size (See Figure 4). Population size plays only a moderate role as far as medium size populations are concerned, and an almost non-existant role as far as large populations are concerned. For small populations however, more substantial proportions of the population must be surveyed in order to achieve any precision.

Non-response or refusals to respond can occur for many reasons and it is rare that a 100% response rate is achieved. If non-response is not taken into account when calculating the sample size, the effective number of units in the sample will be smaller than expected. To overcome this, sample size is sometimes inflated.

USE THE SMALLEST SAMPLE POSSIBLE. Most people tend to over survey. The more questionnaires sent out, the more you are obliged to get back or put down as unanswered. A small percentage return makes one doubt the validity and representativeness of the return information. It would be better to send out less questionnaires and have the ability to follow them up.

Obviously time and cost have definite effect on the sample size. If time or funds are insufficient, sample size may have to be reduced. But take care that the sample size is not reduced to the extent that it is no longer worth conducting the survey.

Surveys can also require the training of interviewers, coding, editing and proper facilities for analysis. Any limitations on these resources may require a reduction in sample size.

SAMPLING TECHNIQUES

Basically there are two types of sampling techniques:

A. PROBABILITY
B. NON-PROBABILITY

A. PROBABILITY

In probability sampling, respondents are chosen from the population randomly. There are several types of random sampling. Three will be discussed here:

1. Simple Random Sampling
2. Systematic Random Sampling
3. Statified Random Sampling

A random sample is one in which every member of the population has an equal chance of being selected to participate in your survey. For this to occur, you must obtain a complete list of the population you are concerned with.

EXAMPLE: * You wish to survey members of the community who are 18 and over.

POPULATION = all members of the community who are 18 years and older.

* You wish to survey families who live in duplexes.

POPULATION = all families in your community that live in duplexes.

The list of the total population is called the **sampling frame** and it is from this list that you select the sample.

Finding an adequate sampling frame is an important step. Is this listing accurate? complete?

EXAMPLE The population of interest consists of members of a professional recreation association. Membership requirements are individuals that 1) have a recognized degree in recreation or a related field 2) have two years work experience and 3) include a membership fee of $65.

You wish to determine the average income earned by members of this association. A number of problems may arise with respect to the suitability of the organization's membership list. These include:

i missing elements - the membership list may be out-of-date. Some members may have moved, died or are no longer in the field.

ii foreign elements - an individual may be included in the list, but not be a member.

iii duplication - names may appear more than once on the list.

1. Number names on sampling forms

Sampling Frame

___
___
046 Holmes
047 Hopkins
048 Jeffery
049 Johnson
050 Johnston
051 Khan
052 Kroeker
053 Lawson
___
___
359 Poole

2. Choose a Column from a Table of Random Numbers

Table of Random Numbers

208	018	886	762
740	874	695	048
166	402	849	329
873	200	628	002
038	773	938	245
229	376	489	051
983	284	381	256
612	837	957	598
166	435	940	444
756	123	073	359
223	665	901	089
984	229	665	288
559	468	638	112
123	555	997	317

Sampling Frame

___
___
___
046 Holmes
048 Jeffery
049 Johnson
050 Johnston
051 Khan
052 Kroeker
053 Lawson
___
___
___
359 Poole

762
048
329
002
245
051
256
598
444
359

3. Match the numbers in the Table of Random Numbers with numbers on the sampling frame.

Figure 5. RANDOM SAMPLING WITH A TABLE OF RANDOM NUMBERS

I **Simple Random Sampling:**

In a simple random sample, place the names of all members of the population on a separate piece of paper and simply draw out the number of names needed for the sample. This is a time consuming and complicated process if both the population and sample are large, particularly if the sample is selected manually.

Another method is to use a table of Random Numbers. To do this:

1. Number each name on the sampling frame (population list).

2. Choose any column from a Table of Random Numbers. See Appendix A or books on surveys or statistics. Match the numbers in the column with the numbered names in the sampling frame. Do this until you have the required number of names. (See Figure 5).

II **Systematic Random Sampling:**

Assume you have 750 names on your sampling frame and you require a sample of 150 people. In systematic random sampling you would:

1. Divide 750 by 150 = 5.

Your sample will consist of 1 out of every 5 names on the sampling frame. 5 = The Sampling Interval.

2. Choose the first name at random, then take every 5th name. When you come to the end of the sampling frame, go back to the beginning and continue to select names until you have the desired number.

Sampling Frame

Abrahamson
Adams
Adolphe
Aitken
Allan
Alvarez
Andreychuk
Andrews
Ans
Armstrong
Ash
Austin
Back
Baker
Bancroft
Barker
Barry
Beatty
Billows
Booth
Brown
Campbell

1. Choose the first name randomly.

2. Choose every 5th name to include in your sample

Systematic random sampling has at least two advantages over simple random sampling.

1. It is easier to draw since only one unit is chosen at random. The remainder are counted off the sampling frame.

2. Higher precision is often associated with systematic sampling because it tends to distribute the sample more evenly over the listed population.

   A disadvantage is **PERIODICITY**. If units on the sampling frame are arranged in a cyclical pattern that happens to correspond with the sampling interval it is likely that a very poor sample will be drawn.

EXAMPLE: You wish to estimate the number of vehicles entering a campground over the period of one month. To do this, a sample of days may be selected and the total number of vehicles entering the campground on these selected days will be observed.

The days of the week will be arranged in order:

MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY
SUNDAY

A sampling interval from 1-7 is chosen at random. If the sampling interval happened to be 7 in this case, it would consistently yield the same day of the week. To the extent that the volume of traffic differs on different days of the week, the estimated number of vehicles may be quite distorted.

III **Stratified Random Sampling**:

There may be occasions when you want to be certain that your sample represents particular segments or sub-groups in the population. If you use simple random or systematic random sampling, it is possible to miss entire groups of people.

Stratified random sampling might be used -

- when you wish to determine the interests and attitudes of various age groupings
- in assessing needs of volunteer centres across Canada - you would want to be certain that small and large cities are represented
- in assessing summer recreation needs in a resort community - you would wish to survey both summer and permanent residents

- in surveying the interests of a community with several ethnic groups

- in determining the economic feasibility of constructing an outdoor swimming pool - you would ensure that a range of income levels and ages are included.

The following steps should be taken to divide the population so that each sub-group is represented in the sample.

1. Divide the population into sub-groups (i.e. age, income, ethnic background, neighbourhood).

2. Determine the size of the sample required.

3. Stratify the sample into the same proportions that exist in the population.

4. Separate the total population in lists - one list for each sub-grouping or strata.

EXAMPLE:

Your research requires that you survey 278 families living in various housing types.

TYPES OF HOUSING IN THE COMMUNITY

Single family dwelling	60%
Duplex	15%
Apartment	25%

Your sample will be calculated in the following manner:

STRATA	% In Population	X	Sample Size	=	Number of Families From Each Strata
Single Family:	60%	X	278	=	167
Duplex:	15%	X	278	=	42
Apartment:	25%	X	278	=	70
					279

5. Use simple random or systemctic random sampling to draw the required number of units from each list compiled in Step 4.

B. **NON-PROBABILITY SAMPLING**

Non-probability sampling methods are generally cheaper and more convenient than probability sampling and can be used on small numbers of respondents to get a "quick reading" on an issue. However, results cannot be generalized to the total population as the results of probability samples can, since respondents are chosen arbitrarily. This fact makes results from non-probability samples undesirable as a basis for decision making.

Non-probability sampling techniques include:

VOLUNTEER SAMPLING:

Respondents are part of the sample by virtue of their conscious decision to participate. Polls conducted by radio stations in which listeners are invited to phone in are an example.

HAPHAZARD SAMPLING:

Respondents are chosen because they happen to be readily available at the time of the survey. Shopping centre polls are an example.

QUOTA SAMPLING:

Respondents are selected on the basis of certain pre-determined criteria. For example, an interviewer might be instructed to survey 20 women between the ages of 21 - 30 and 15 men between 21 - 30 years. When the interviewer goes out, he or she will interview any individual that fits into the category until the quota is filled. The quota can be calculated in a manner similar to stratified random sampling, but in quota sampling respondents are not truly chosen from the sub-group at random.

1. PRINTING COSTS OF THE QUESTIONNAIRE, COVER LETTER, OR SPECIAL FORMS.

2. POSTAGE FOR INITIAL MAILING AND FOLLOW-UP.

3. TYPING OF ORIGINAL AND REVISED QUESTIONNAIRES AFTER FIELD TESTING.

4. EDITING, MARKING, AND TABULATING RETURNED QUESTIONNAIRE.

5. ELECTRONIC DATA PROCESSING NEEDS, IF REQUIRED (INCLUDING KEY PUNCHING AND MACHINE TIME).

6. OFFICE SUPPLIES TO BE USED

7. ADDITIONAL OR PART-TIME STAFF WAGES.

8. TYPING OF FINAL REPORT.

9. CONSULTANTS

Figure 6. MAIL OUT SURVEY COSTS

TYPES OF SURVEYS

MAIL QUESTIONNAIRES

Of all the survey methods, mail questionnaires are the least expensive and the easiest to administer. Disadvantages are that response rates are generally low and that the information sought cannot be complex.

Despite criticism and public distrust of mail out surveys, they are widely used. Reasons for this include -

- COST - mail outs are the least expensive form of information gathering (See Figure 6)
- EASE OF ADMINISTRATION - Few personnel are required
- STANDARDIZATION - all respondents are asked the same question in the same way
- FAMILIARITY - people are familiar with responding to questionnaires
- NUMBER - mail-outs can reach large numbers of people across a wide geographical area.

Mail questionnaires require careful thought and preparation to ensure that your objectives are communicated and that the "right" questions are asked. Respondents may be more inclined to complete your survey if they feel that all the questions are relevant to your objectives and to your organization.

The first rule of mail out questionnaires is to keep them simple, both in the manner that questions are asked and how they can be analyzed. Mail out questions must follow the "lowest common denominator" principle - that is, questions must be constructed so that the youngest or least articulate members of the sample can understand them. (See Figure 7).

Because the mail out questionnaire is its own advocate, it is important that the format and layout be attractive. It is helpful to make the questionnaire look as professional as possible. The following are hints to achieve this -

- Design an attractive title page
- Leave the back page blank or with a message of appreciation

DO	DON'T
- Begin with non-threatening, easy to answer questions	- Use ambiguous or technical terms
- Make questions brief	- Use negatively worded questions
- Leave enough room for responses (plenty of white space gives an uncluttered look)	- Use double barrelled questions that ask for responses to more than one statement
- Group questions into categories	- Bias responses by hinting at "desired" answer
- Provide variety in the types of questions	- Ask questions to which you already know the answer
- Include clear concise instructions	- Place important items at the end of the questionnaire.
- Provide a well written cover letter	- Mail surveys just prior to holidays
- Pre-test to iron out problems	- Conduct a mailout survey in the summer
- Number pages	
- Specify what to do with completed questionnaires	
- Use first class mail	
- Include self addressed stamped envelopes	
- Maintain a telephone advisory	
- Use as many resources (experts, relevant decision makers etc...) as you can in the design of the questionnaire.	

Figure 7. MAIL-OUT SURVEY DO'S AND DON'T'S

- Answer categories should be capitalized, numbered and arranged in a block.
- Number all questions
- Do not split questions on different pages
- Ensure adequate space for open-ended questions
- Vary the style of type within the questions to emphasize the most important parts.

It is also necessary to include an attractive, well written cover letter that explains the survey's objectives and promises confidentiality. The following points should be addressed when designing a cover letter -

- clearly state the survey's purpose
- explain how the information will be used
- explain the value of the study
- identify the sponsor
- include the investigator's name and phone number
- give clear instructions for completing the questionnaire
- assure the respondent of confidentiality
- state that copies of the results will be made available
- provide a self-addressed, stamped return envelope
- date the letter
- sign the letter personally
- use an original or a high quality copy
- make the cover letter as personal as possible and less like a form letter.

Follow up is very important in securing responses to mail out questionnaires. The first contact generally consists of a cover letter, questionnaire and a stamped, self-addressed return envelope. The second contact, following in about a week or so, consists of a reminder post card. This contact often increases the number of returns. The third follow up is a letter and another copy of the questionnaire.

A fourth contact is often unproductive and can generate hostility among non-respondents.

DO	DON'T
- Spend great care in selecting and training interviewers	- Match the interviewer characteristics with respondents except under exceptional circumstances.
- Monitor interviewer performance and make adjustments quickly	- Give an entire set of questionnaires to an interviewer at the beginning of the survey
- If possible, combine interviewing, data verification and data entry tasks	- Allow the interviewer to take the questionnaire home
- Use contracts for the interviewer which clearly explain the responsibilities of all parties	- Tolerate any breach of confidentiality
- Spread the difficult interviews among the staff	
- Use two interviewers in difficult environments	

Figure 9. PERSONAL INTERVIEW DO'S AND DON'T'S

PERSONAL INTERVIEWS

Personal interviews involve face-to-face questioning of respondents by interviewers. Because an interview generally takes place in the respondent's home or office, a congenial atmosphere can be established and much information can be exchanged. At the same time, the presence of the interviewer can cause bias; respondents may not answer candidly or may answer with what they believe the interviewer wants to hear.

Personal interviews are desirable when -

- the subject matter is complex
- there are many questions
- the survey seeks unstructured, open-ended questions
- answers from a sufficient number of respondents are not otherwise available (For example, if you were surveying architecture graduates from the class of 1909, you would probably interview to ensure that you contacted the few remaining graduates!)

An advantage of the personal interview is that questions can be repeated or explained to respondents. This must be done cautiously, however, so that interviewers do not begin to ask the questions differently than intended. It is also possible for interviewers to use visual aids - cards, models and so on - to assist in questioning.

The key to successful personal interviews is well trained interviewers. Training costs, wages and travel expenses make personal interviews the most expensive survey technique. At the same time, they yield the highest response rate and can be used to obtain detailed information.

Refer to Figure 8 for Interview do's and don't's.

TELEPHONE INTERVIEWS

Telephone interviews are conducted from a central location, giving the supervisor better control and contact with the interviews, and reducing travel costs and the number of hours worked by interviewers.

Telephone interviews are useful in raising "difficult to contact" people, and can cover a wide geographic area for relatively little cost. Although people may be more candid over the telephone than in person, the amount of information gathered and the length of the telephone interview is limited as it is harder to hold the respondent's attention.

To implement telephone interviews, it is particularly important to have a well planned introduction to persuade the respondent to participate (See Figure 9). It is also useful to send an advance letter to explain the survey's objectives and advise respondents that they will be contacted. (See Figure 10).

"Hello, my name is _____. I work for the Municipal Recreation Commission. We are asking a random sample of Hillview residents about recreation in the community. Is this telephone number _____?"

If no, conclude the interview.

"The information that you give to me will be of great value to the Recreation Commission for improving recreation services in the coming year, and your answers will be kept strictly confidential.

If they wish to verify surveys, ask them to call Mr./Mrs. _____ at _____ (phone).

If respondent is too busy to talk -

"I'll call back later. What time is convenient?"

If respondent agrees to interview, continue

"First, I need to know:

1. Are you 18 years old or over? _____Yes _____ No.

2. Are you a member of this household? _____Yes _____ No"
   If Yes move to Question 3.

If respondent is not a member of household or is under 18, SAY

"Is the mother or father of the household home? _____Yes _____No"

If neither is at home, SAY

"Is some other adult home? _____Yes _____No"

If the adult cannot be reached ask what time you should call back.
If there is no adult conclude interview.

3. Recreation is sometimes thought of as any pleasant activity that is available during your free time. What do you think of the recreation activity available in the community? Is it:

Very good	Good	Fair	Poor	Don't Know	No Opinion

Figure 9. TELEPHONE INTERVIEW - INTRODUCTION

DO	DON'T
1. Centralize the telephone office	1. Call during the supper hour (5:30 p.m. - 7:00 p.m.)
2. Change the questionnaire so that it reads easily on the phone	2. Call before 9:00 a.m. or after 10:00 P.M. unless by appointment
3. Train the interviewers using "dry" runs.	3. Press a hostile respondent
4. Use an advance letter to introduce the survey and its purpose	4. Allow the survey to be conducted from the interviewer's home phone
5. Provide the interviewer with an operations manual	5. Let the questionnaire leave the office
6. Provide the interviewer with a set of expected questions and suggested answers	6. Tolerate any breach of confidentiality.
7. Train the interviewers to be sensitive to the form of the response as well as its content	
8. Use contracts for interviewers which clearly explain the responsibilities of all parties	

Figure 10. TELEPHONE INTERVIEW DO'S AND DON'TS

"Interviewers should be prepared with a "fact sheet" that outlines survey objectives and other questions respondents are likely to ask. The questionnaire itself should be designed so that responses can be quickly and easily recorded. Generally, open with a series of brief, easy questions and ease into more complex ones.

CONFIDENTIALITY

The privacy of the information supplied by survey respondents is of prime concern. Recommended policy to safeguard confidentiality follows:

1. Use code numbers for identifying a respondent and keep the code separate from the questionnaire.

2. Refuse to give names/addresses of survey respondents to anyone outside the organization.

3. Destroy the questionnaires and identifying information after the responses have been analyzed.

4. Omit names and addresses of survey respondents from computer tapes, if used.

5. Present statistical information by broad categories so that individual respondents cannot be singled out.

ADVANTAGES	DISADVANTAGES
• Yields an answer that is relatively free and uninfluenced by the researcher	• Require more effort from the respondent; higher refusal rate.
• Allows for creative, natural expression	• Data is not standardized; is more difficult to analyze
• Researcher can determine what type of information people have and what misinformation	• Questionnaire requires more paper; looks longer
• Information can be gained concerning the words/phrases people use in relation to certain issues or services	• Some people find it difficult to express themselves on paper
• Useful when answers are too complex to fit into fixed categories	• Some people are reluctant to put their thoughts/opinions in writing
	• People may know more than they remember to answer.

Figure 11. SUMMARY OF OPEN-ENDED QUESTIONS

QUESTIONS

FORMAT AND STRUCTURE

A major distinction between questions is whether their response is OPEN-ENDED or CLOSED-ENDED. In an OPEN-ENDED question, respondents supply their own answer. In contrast, a CLOSE-ENDED question provides a list of answer choices or 'response categories' from which the respondent must choose. Each type of question has advantages and disadvantages. Your choice will depend on your research objectives and on characteristics of your sample.

Open Ended Questions:

Open-ended questions can help determine how much people know about an issue or service. It is a good format to use when asking for opinions and attitudes as it provides freedom for people to respond in any way they wish.

EXAMPLES:

- What do you think are the advantages of Plan X?

_____

- What do you think are the disadvantages of Plan X?

_____

- How could the Community Club board improve its programs?

_____

N.B. Remember, you can to some extent control people's answers by the amount of space you leave blank. Provide enough room!

Open ended questions may be used to:

- Identify respondents' awareness and knowledge of a program and service without prompting.

ADVANTAGES	DISADVANTAGES
• Questions are more uniformly interpreted by respondents	• Can be boring if large numbers of closed-ended questions are asked
• Answers are relatively easy to classify and analyze	• Information obtained cannot be too complex
• More questions can be asked.	
• Questionnaire is simple and clear - a significant factor increasing a response rate	• May be easier for someone other than the desired respondent to complete the question
• Can help to eliminate some problems of vocabulary and definition	• Easy for respondents to answer randomly or guess
	• Differences in interpretation can go undetected.

Figure 12. SUMMARY OF CLOSED - ENDED QUESTIONS

- Identify what words, titles, concepts, ideas mean to people.

- Obtain problem statements, suggestions, opinions, and issues in the respondents' languages.

- Find out what categories of information should be included in future questionnaires that will use a closed question form.

See Figure 11 for the advantages and disadvantages of open-ended questions.

Closed-Ended Questions:

In closed-ended questions, respondents must choose from alternatives provided by the researcher. (See Figure 12) Therefore, response categories must include all possible responses.

EXAMPLES:

- Please circle. Are you:

  1. male
  2. female

- Did you participate in City operated recreation programs in 1982?

  1. Yes
  2. No

The above questions are simple and the response categories are straightforward. However consider these questions:

- Will you be participating in City operated programs in 1983?

  1. Yes
  2. No
  3. Uncertain

- Do you agree with the proposal to install artifical ice in the arena?

  Yes_____
  No_____
  Uncertain_____

In these questions it would be incorrect to provide only Yes and No options as respondents may still be undecided and require further information before committing themselves to a decision.

Remember, response categories must be EXHAUSTIVE; that is, no other answers are possible. Sometimes, it is impossible to list all possible responses. In this case, add the category "OTHER" with space to fill in details.

1. Provide at least four or five alternative responses.

2. Provide the same number of positive statements as there are negative statements.

3. List the responses in logical order.

4. Make certain there are no overlapping categories.

5. Include all possible responses.

Figure 13. RULES FOR CONSTRUCTING SCALED QUESTIONS

EXAMPLE:

- Who should run the Minor Baseball League? (Check one or more)

_____ Parents

_____ Teachers

_____ Recreation Staff

_____ Other, Please Specify_____

A second rule in constructing closed-ended questions is that response categories must not overlap. Each category must be MUTUALLY EXCLUSIVE so that if a respondent checks one answer s/he cannot logically check another response. The following example demonstrates the confusion of overlapping categories.

EXAMPLE:

- Several types of recreation activities are listed below. Please circle the ONE that you do most often.

1.	Skiing	4.	Team Sports	7.	None of the above.
2.	Skating	5.	Snow Shoeing		
3.	Hockey	6.	Cross-country skiing		

In this question, response #4 Team Sports is more general than the rest and overlaps with #3 Hockey. Additionally, confusion could arise when choosing between #1 Skiing and #6 Cross-country Skiing and between #2 Skating and #3 Hockey.

The question might be re-written -

- Several types of recreation activities are listed below. In which ONE do you most often participate?

1.	Downhill Skiing	4.	Snow shoeing
2.	Figure Skating	5.	Cross-country Skiing
3.	Hockey	6.	None of the above.

SCALES

When providing response categories for closed-ended questions, you may wish to construct a SCALE. (See Figure 13)

EXAMPLE:

Do you read the daily newspaper?

1. always
2. often
3. sometimes
4. rarely
5. never

The main characteristic of a scale is that the categories have a logical, ordered relationship. Although we may not know precisely the amount of difference between the categories, we do know that 'always' is more frequent than 'often', 'often' is more frequent than 'sometimes' and so on.

Although words like 'always', 'often', 'sometimes', 'rarely' and 'never' do form a scale, they are not very precise. When you wish to know more exact frequencies, use more specific wording.

EXAMPLE:

- About how many times did you personally visit the public library in 1982?

  1. More than sixteen times
  2. Between eight and fifteen times
  3. Between four and seven times
  4. One to three times
  5. Not at all.

Scaled questions are not only useful in gathering factual data, but are also ideally suited to determining opinions and attitudes.

EXAMPLE:

- Participating in leisure activities helps me to relax.

  1. Strongly agree
  2. Agree
  3. Uncertain
  4. Disagree
  5. Strongly disagree

- How would you rate the Recreation Centre facilities?

  _____ Very Satisfactory
  _____ Satisfactory
  _____ Unsatisfactory
  _____ Very Unsatisfactory

NB When constructing these types of scales, ensure a balance between positive and negative items.

1. Ensure that each category is the same size.

2. Make certain there are no overlapping categories.

3. List the categories in logical order.

4. When using an interval scale to test knowledge that involves numbers, place the correct answer near the top or near the bottom of the list.

5. When using an interval scale to list knowledge of names, ideas or statements, place the correct answer near the middle of the list.

FIGURE 14. RULES FOR CONSTRUCTING INTERVAL SCALE QUESTIONS

- How should the operation of public recreation facilities be paid for?

  - completely through tax revenues
  - mostly through tax revenues
  - equally through tax revenues and user fees
  - mostly through user fees
  - completely through user fees

An **INTERVAL SCALE** has equal distances between categories. They are used to gather quantitative information, most commonly age and income. (See Figure 14)

EXAMPLES:

- In what age group are you? (Circle)

0 - 15	45 - 60
16 - 30	over 60
31 - 45	

- How many books did you read for pleasure in 1982?

None	21 - 30
1 - 10	over 30
11 - 20	

As in all scale questions, answer categories must not overlap.

EXAMPLE:

- What is your income?

Wrong	Right
0 - 5,000	0 - 5,000
5,000 - 10,000	5,001 - 10,000
10,000 - 15,000	10,001 - 15,000
over 15,000	15,001 - and over

RATING SCALES can also be used to determine peoples' reactions, attitudes or opinions. They take up little space on a page and can be summarized/ analyzed quite quickly. Disadvantages are that the scales can be confusing and boring.

EXAMPLES:

- To what extent do you think a workshop on long-term planning will be useful to your community?

1	2	3	4	5
Not very Useful				Very Useful

- How important is it to you that the Recreation Commission develop an orientation for new members?

1	2	3	4	5
Not At All Important				Extremely Important

- To what extent are you interested in attending a Level II Coaching Theory Course?

1	2	3	4	5
Not Very Interested				Very Interested

- Circle the point on the scale that best describes what LEISURE means to you.

LEISURE is:

Boring	1	2	3	4	5	6	7	Interesting
Necessary	1	2	3	4	5	6	7	Unnecessary
Satisfying	1	2	3	4	5	6	7	Dissatisfying

RANK ORDERING, having respondents put items in order of priority, is a way to find out how they value the items. In effect, respondents create their own scale.

EXAMPLE:

Which type of facility do you think needs to be improved or expanded the most? (Place a 1 beside your first choice, 2 beside your second choice)

___	athletic fields	___	theatre
___	community parks	___	swimming pool
___	creative arts facility	___	tennis courts
___	ice arena	___	curling club

___ other, specify _____

- As a volunteer board member, in what areas do you wish training opportunities were made available? (Rank the following, '1' being the most desirable)

___ Long and short range planning

___ Fundraising

___ Conducting effective meetings

___ Marketing and public relations

___ Effective speaking

___ Roles and responsibilities of board members

___ Other _____

_____

_____

Note: One mistake made on many needs assessment questionnaires is to assume that people will actually do things that they place as a high priority. You can add a follow-up question that asks for an indication of their true interest in their choices.

CHECKLISTS allow respondents to make several choices. They are used when there may be more than one alternative that may be correct for the respondent.

EXAMPLE:

- Which of the following best describe your reason(s) for attending this conference:

___ Social

___ Professional Development

___ Renew Contacts

___ Education

___ Other, (Specify)_____

- Which of the following describes your reason for not using the public pool?

___ Too crowded

___ Costs too much

___ Feel that the pool is for children

___ Do not know how to swim

___ Not enough time

___ Other (Specify) _____

1. USE SIMPLE WORDS

2. MAKE THE QUESTIONS CONCISE

3. FORMULATE QUESTIONS TO YIELD EXACTLY THE INFORMATION DESIRED.

4. AVOID "DOUBLE-BARRELLED" OR MULTIPLE-MEANING QUESTIONS.

5. AVOID AMBIGUOUS QUESTIONS.

6. AVOID LEADING QUESTIONS.

7. AVOID "DANGER" WORDS, CATCH WORDS, STEREOTYPES, OR WORDS WITH EMOTIONAL CONNOTATION.

8. DECIDE WHETHER TO INCLUDE INDIRECT QUESTIONS.

9. DECIDE WHETHER TO PERSONALIZE SOME OF THE QUESTIONS.

10. ALLOW FOR ALL POSSIBLE RESPONSES.

11. MAKE ALTERNATIVES IN MULTIPLE-CHOICE QUESTIONS REALISTIC.

12. KEEP TO MINIMUM THE AMOUNT OF WRITING REQUIRED ON THE QUESTIONNAIRE.

13. INCLUDE A FEW QUESTIONS THAT SERVE AS CHECKS ON THE ACCURACY AND CONSISTENCY OF THE QUESTIONS AS A WHOLE.

14. AVOID QUESTIONS THAT CALL FOR RESPONSES TOWARD SOCIALLY ACCEPTED NORMS OR VALUES.

15. CHECK FOR OBJECTIONABLE QUESTIONS.

Figure 15. QUESTION CONSTRUCTION

CONSTRUCTION

There are numerous cautions about how to write and how not to write survey questions -

Keep questions clear and concise

Keep it simple

Keep it short

Avoid ambiguous questions

Avoid loaded words

Avoid vague phrases

Avoid leading questions

The following discusses common difficulties in question construction.

1. Avoid Loaded Words

Loaded words or phrases are ones that are emotionally charged and that stir up immediate postive or negative reactions. When loaded words are used in a question, people may react more to the word than the issue the question is addressing. Examples are: drugs, vandalism, strikes, ghetto.

Often names of organizations, political parties, or groups of people are loaded. For example, when a question begins with, "Doctors say...," some people may be drawn to agree because they respect what doctors say.

2. Avoid Double - Barreled Questions

These questions actually ask two questions in one.

EXAMPLE:

Does your organization provide programs for women and seniors?

_____ yes _____ no

If the organization offers programs for women but not seniors or vice-versa, what should the respondent answer? This information should be asked in two separate questions.

3. Avoid Loaded Response Categories

In closed-ended questions, response categories should be balanced. If, for example, the number of positive categories is not the same as negative, the respondent may be influenced.

EXAMPLE:

Since January 1, 1983, what changes, if any, have occurred in the amount of time you spend participating in SPORT activity.

WRONG:

1. _____ Decreased
2. _____ Remained the same
3. _____ Increased slightly
4. _____ Increased a lot

The above question is unbalanced because response 1 is outweighed by responses 3 and 4. The question would be better written as follows:

- Since January 1983, what changes, if any, have occurred in the amount of time you spend participating in SPORT activities.

RIGHT

1. _____ Decreased greatly
2. _____ Decreased slightly
3. _____ Remained the same
4. _____ Increased slightly
5. _____ Increased greatly

4. Avoid Loading the Entire Questionnaire

When all the questions have been prepared for the survey, the questionnaire as a whole should not reflect bias on any issue; the survey should be neutral. To do this, both sides of an issue should be explored.

EXAMPLE:

What are the strengths of the minor hockey program in our community?

_____

What are the weaknesses of the minor hockey program?

_____

5. Avoid Leading Questions

Leading questions are ones that suggest a "right" or socially acceptable answer, or that indicate the researcher's viewpoint. People will sometimes respond to questions on the basis of what they believe is the desirable answer. This is known as PRESTIGE BIAS. This often occurs because of the way a question is asked.

EXAMPLE:

- Are you in favour of services to seniors?

  To say NO would be like voting against motherhood.

- You don't smoke, do you?

  Instead: do you smoke?

6. Avoid Vague or Ambiguous Words/Phrases

Although there are occasions when you will wish to be deliberately vague because you are exploring an issue, generally vagueness can be confusing to the respondent. Some words or phrases that are vague, and best avoided are:

- sometimes
- often
- always
- several (times)
- adequate
- happy
- rarely
- seldom
- a few times

If a question refers to a specific time, it is wise to state it -

- "1983" instead of 'during the year'.
- "September and October" instead of "in the fall".
- "once a month" instead of "a few times a year".

7. Avoid Questions that are too Precise/Demanding

Sometimes people cannot recall what they did last week, yet researchers ask people to remember details from last year. Some types of detailed information are difficult to get and simply are too demanding.

EXAMPLE:

- How many books, fiction and non-fiction did you read during 1982?

  _____books

  Instead,

  Approximately how many books, fiction and non-fiction, did you read during 1982?

  _____ none

  _____ less than 10 books

  _____ 10 to 20 books

  _____ 21 to 30 books

  _____ more than 30 books

Mentally taxing questions often appear when researchers want to know how people spend their money or time, or about details of the respondent's past. This places unnecessary demands on the respondent unless questions are sequenced in an order that assists the person's recall. Checklists that are too long and ranking questions with more than 8 - 10 items are also demanding.

EXAMPLE:

- In the last month, what percentage of your leisure time was spent watching competitive sports?

  _____ percent

  Instead,

  1a) On the average, how many hours of leisure time do you have per week?

  _____ hours

  1b) Do you watch competitive sports on T.V.?

  _____ No

  _____ Yes

If yes, based on the last 3 months approximately how many hours per week did you watch competitive sports on T.V.?

_____ Less than 1 hour per week

_____ Between 1 - 3 hours per week

_____ Between 4 - 6 hours per week

_____ Between 7 - 9 hours per week

_____ Between 10 -12 hours per week

_____ 13 or more hours per week

- What percent of your monthly income is spent on entertainment?

  Instead,

  a) What is your average monthly income

  _____

  b) On the average, how much do you spend per month on entertainment?

  _____

Now you, the researcher, can calculate the percent of monthly income spent on entertainment.

8. Avoid Threatening or Offensive Questions

Some questions can offend respondents so much that they may answer dishonestly or refuse to answer the question. One reason a person may be offended is that a personal question may be seen as an invasion of privacy.

EXAMPLE:

- **What is your annual income? _____**

  Instead, ask

  What is your annual income?

  _____ less than $5,000
  _____ $5,000 - $10,000
  _____ $10,001 - $15,000
  _____ $15,001 - $20,000
  _____ over $20,000

- **How old are you?**

  _____ under 18
  _____ 18 - 25
  _____ 26 - 35
  _____ 36 - 45
  _____ 45 - 55
  _____ over 55

Some questions may threaten respondents. Legal issues are an example.

EXAMPLE:

- **Have your children been involved in acts of vandalism?**

  _____ Yes **_____ No**

- **Do you smoke marijuana?**

  _____ Yes **_____ NO**

There are several ways to ask these questions in a less objectionable way. For example, you may provide an introduction or background information to soften the question and/or ask a series of questions starting with general opinion questions.

EXAMPLE:

- **As you may know, there is some discussion about vandalism in this community, and there are questions as to how it should be handled. Some people feel it is a serious problem; others feel it is not. What is your opinion? Do you consider vandalism to be a serious, moderate, slight, or no problem in this community? (Circle the number beside your answer).**

  1. **SERIOUS PROBLEM**
  2. **MODERATE PROBLEM**
  3. **SLIGHT PROBLEM**
  4. **NOT A PROBLEM**
  5. **NO OPINION**

- During the last few years, do you think the incidence of vandalism has increased, stayed the same, or decreased in this community?

    1. INCREASED

    2. STAYED THE SAME

    3. DECREASED

    4. DO NOT KNOW

- Do you personally know anyone who has been involved in destroying public or private property?

    1. YES

    2. NO

- Have your children ever been involved in destroying public or private property?

    1. YES

    2. NO

9. Avoid Inappropriate Questions

Perhaps the most costly error in questionnaire construction occurs when the researcher begins to ask questions that do not directly relate to the survey objectives. When this happens, the information gathered may be "nice to know", but may discourage people from responding because they cannot understand how the questions relate to the purpose of the survey. - And rightly so! Be certain that each question is necessary.

Consider the extent of knowledge that respondents are likely to have concerning an issue.

EXAMPLE:

- What team do you think will win the Stanley Cup?

  - This question assumes that respondents have an interest in hockey, and that may not be so.

Figure 15 demonstrates these points in summary form.

Suggestions for the first few questions in a survey are that they be -

1. directly related to the survey objectives.
2. relatively easy to answer.
3. neutral.
4. questions that everyone can answer.

Figure 16. SEQUENCING OF QUESTIONS

SEQUENCE

The process of writing a questionnaire, whether for mail, telephone or personal interview situations involves writing draft questions trying out different forms of the same question, revising and re-writing. You must keep checking that the questions you are asking relate to your objectives and that they yield the type of information you require.

Once you have formulated the questions, you must decide on the order in which to present them. Some researchers begin with questions on age, sex, marital status, income and so on. These questions are easily answered and gives the respondents confidence about completing the questionnaire or interview.

Other researchers believe that these demographic questions should be placed at the end of the questionnaire. They argue that the survey should begin with an interesting question that relates directly to the survey's objectives and that will motivate the respondent to continue (See Figure 16).

The best test of your wording and sequence comes when you PRE-TEST the questionnaire.

RESULTS

DESCRIBING THE RESULTS

So, now that the survey is completed, how do you organize the information into a usable and understandable form? The fundamental purpose of describing data is to provide a way of simplifying the information. Some very basic ways to describe information will be mentioned here.

Frequency:

A frequency is the number of observations in any given response category.

EXAMPLE:

Suppose you have a question in which the respose categories are:

YES
NO
DON'T KNOW

As you record the answers to this question on a master sheet, the result may be a frequency table that looks like this:

YES	~~1111~~	~~1111~~	~~1111~~	111
NO	~~1111~~	111		
DON'T KNOW	1111			

Now you can say that 18 people responded "YES", 8 people responded "No" and so on.

Proportion:

A proportion is the frequency of a subset of observations divided by the total number of observations.

EXAMPLE:

The proportion of "Yes" responses in the example above is 18/30 or, expressed as a decimal, .6.

Percentage:

Proportions can be expressed as percentages simply by multiplying the decimal or fraction by 100.

EXAMPLE:

$$.6 \times 100 = 60\%$$

or

$$\frac{18}{30} \times 100 = 60\%$$

Ratio:

A ratio is any one proportion divided by any other proportion.

EXAMPLE:

In our original example, suppose you want to know the ratio of "Yes" responses to "No" responses.

$$\text{Ratio} = \frac{\text{frequency of "Yes" responses}}{\text{total responses}} \quad \frac{\text{frequency of "No" responses}}{\text{total responses}} \quad \frac{18}{30} \quad \frac{8}{30}$$

$$= \frac{\text{frequency of "Yes" responses}}{\text{total responses}} \quad \frac{\text{total responses}}{\text{frequency of "No" response}} \quad \frac{18}{30} \quad \frac{30}{8}$$

$$= \frac{\text{frequency of "Yes" responses}}{\text{frequency of "No" responses}} \quad \frac{18}{8}$$

$$= 2.25$$

A ratio of 2.25 means that for every "NO" response there are 2.25 "YES" responses. By utilizing ratios, we have a way of comparing quantities in our answers. In other words, we can compare the relative frequency of different responses.

USING THE RESULTS

The statistics - percentages, averages and so on - derived from a survey will rarely correspond exactly with reality; very few are 100% precise. Fortunately, the value of a statistic does not depend on its being exactly true. But, it does need to be sufficiently reliable to serve particular needs. How precise your survey results must be depends to a great extent on the actions or recommendations that will be influenced by the data. It is necessary to consider the purpose of the particular study, how the information will be used, and the effects of errors of various sizes on the action taken based on the survey results. These factors will affect the sample size, design of the questionnaire, the effort put into training interviewers and so on. Of course the goal is always to minimize sources of possible error and to identify where inaccuracies may occur.

In statistical terminology, sources of possible inaccuracies are referred to as types of "error". However, use of this term does not necessarily infer that a mistake has been made.

Statistics gathered from surveys are subject to two types of error - sampling error and non-sampling error. These are discussed below.

1. Sampling errors

   This is the error attributed to studying a sample of the population rather than conducting a census. Information on sampling errors should be made available to all users of the survey results.

   * Further information regarding how sampling errors are estimated is available in all books on statistics.

2. Non-sampling errors

   Unlike sampling error, there is no simple method of estimating the size of non-sampling errors.

   Non-sampling errors can be classified into two groups - random types of errors whose effects approximately cancel out if a fairly large sample is used, and biases which tend to create errors in the same direction and thus accumulate over the entire sample.

   Biases can arise from any aspect of the survey operation. Some of the main causes of bias are:

1. **Sample selection:**

   Part of the population may be omitted from the sampling frame or there may be errors in sample selection.

2. **Non-response:**

   Generally, responses are not obtained from the entire sample. Frequently there are differences between the non-respondents and the respondents.

3. **Adequacy of respondent:**

   Sometimes respondents cannot be interviewed and the information is obtained from others. But the "proxy" respondent is not always as knowledgeable about the facts.

4. **Understanding:**

   Some respondents may not understand what is being asked.

5. **Lack of knowledge:**

   Respondents may not know about the information requested.

6. **Concealment of the truth:**

   Out of fear or suspicion of the survey, respondents may conceal the truth.

7. **Loaded questions:**

   Questions may be worded in such a way as to influence respondents.

8. **Processing errors:**

   These can include errors in counting, coding, computer programming, etc.

9. **Conceptual problems:**

   There may be differences between what is desired and what the survey actually covers.

10. **Interviewer error:**

    Interviewers may misread the question or record answers in their own words thereby introducing bias.

Each survey is not necessarily subject to all of these sources of error. In preparing and conducting the survey, these possible sources of BIAS should be explored and every attempt made to reduce them.

REPORTING THE RESULTS

Obviously, members of the organization that sponsored the study should be advised of the results, and if the survey deals with community issues, the public should be informed as well.

REMEMBER:

1. A well designed survey gives you good information.

2. A well designed survey can be analyzed without a computer or a Ph.D. in statistics.

   Look at the information, really look at it, table it, play with it, ask questions, and look for hints as to where the important relationships are hiding. Use your imagination and intuition.

3. A survey report should include -

   - the survey objectives
   - an outline of methods and procedures
   - information on the target population
   - how results were analyzed
   - a summary of results (charts, graphs or tables are very useful)
   - recommendations
   - conclusions

BUDGETING FOR A SURVEY

The preceding sections illustrate that many stages are involved in a survey. These include tasks such as planning, sample design, sample selection, questionnaire preparation, pre-testing, interviewer hiring and training, data collection, data processing and report preparation. Although some of these steps overlap, all of them are time consuming, and a common error is to underestimate the time needed to prepare, conduct and analyze a survey.

A chart such as Figure 2, page 3 is useful in estimating the cost of a survey as it outlines the various tasks involved. Among the factors that enter into an expense budget are:

1. staff time for planning the study and steering it through the various stages.

2. costs related to interview hiring, training and supervision.

3. labour costs for field procedures (interviewer salary and travel expenses)

4. cost of preparing and coding information

5. computer time for tabulations and analysis

6. labour and material costs for analysis and report preparation

7. telephone charges, postage, printing.

SELF QUIZ

We suggest the use of the following four questions as a quick test of how close you are to your goal.

1. Can you state the purpose of your survey in 25 words or less.

   What do you want to know?
   Why do you want to know it?
   What will happen as a result of answering each question?
   Is it really worth doing?

2. Are you familiar enough with the topic and the people you will be surveying to keep subject matter experts in line when they start caring about your survey?

3. Do you have a sponsor who will push the project? Fund it? Utilize the results? Stand behind you when things don't go quite right?

4. Are you sure you can reach the necessary population? Have you anticipated their reasons for possibly not responding? Can you follow up with them? Assure them anonymity?

If after going through these four questions you find a number of items unanswered, continue to work on the ground work before proceeding with the actual survey.

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APPENDIX A

Table of Random Numbers

	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-99
00	59391	58030	52098	82718	87024	82848	04190	96574	90464	29065
01	99567	76364	77204	04615	27062	96621	43918	01896	83991	51141
02	10363	97518	51400	25670	98342	61891	27101	37855	06235	33316
03	86859	19558	64432	16706	99612	59798	32803	67708	15297	28612
04	11258	24591	36863	55368	31721	94335	34936	02566	80972	08188
05	95068	88628	35911	14530	33020	80428	39936	31855	34334	64865
06	54463	47237	73800	91017	36239	71824	83671	39892	60518	37092
07	16874	62677	57412	13215	31389	62233	80827	73917	82802	84420
08	92494	63157	76593	91316	03505	72389	96363	52887	01087	66091
09	15669	56689	35682	40844	53256	81872	35213	09840	34471	74441
10	99116	75486	84989	23476	52967	67104	39495	39100	17217	74074
11	15696	10703	54178	90637	63110	17622	53988	71087	84148	11670
12	97720	15369	51269	69620	03388	13699	33423	67453	43269	56720
13	11666	13841	71681	98000	35979	39719	81899	07449	47985	46967
14	71628	73130	78783	75691	41632	09847	61547	18707	85489	69944
15	40501	51089	99943	91843	41995	88931	73631	69361	05375	15417
16	22518	55576	98215	82068	10798	82611	36584	67466	69377	40054
17	75112	30485	62173	02132	14878	92879	22281	16783	86352	00077
18	08327	02671	98191	84342	90813	49268	95441	15496	20168	09271
19	60251	45548	02146	05597	48228	81366	34598	72856	66762	17002
20	57430	82270	10421	00540	43648	75888	66049	21511	47676	33444
21	73528	39559	34434	88596	54086	71693	43132	14414	79949	85193
22	25991	65959	70769	64721	86413	33475	42740	06175	82758	66248
23	78388	16638	09134	59980	63806	48472	39318	35434	24057	74739
24	12477	09965	96657	57994	59439	76330	24596	77515	09577	91871
25	83266	32883	42451	15579	38155	29793	40914	65990	16255	17777
26	76970	80876	10237	39515	79152	74798	39357	09054	73579	02359
27	37074	65198	44785	68624	98336	84481	97610	78735	46703	98265
28	83712	06514	30101	78295	54656	85417	43189	60048	72781	72606
29	20287	56862	69727	94443	63936	08366	27227	05158	50326	59566
30	74261	32592	86538	27041	65172	85532	07571	80609	39285	65340
31	64081	49863	08478	96001	18888	14810	70545	89755	59064	07210
32	05617	75818	47750	67814	29575	10526	66192	44464	27058	40467
33	26793	74951	95466	74307	13330	42664	85515	20632	05497	33625
34	65988	72850	48737	54719	52056	01596	03845	35067	03134	70322
35	27366	42271	44300	73399	21105	03280	73457	43093	05192	48657
36	56760	10909	98147	34736	33863	95256	12731	66598	50771	83665
37	72880	43338	93643	58904	59543	23943	11231	83268	65938	81581
38	77888	38100	03062	58103	47961	83841	25878	23746	55903	44115
39	28440	07819	21580	51459	47971	29882	13990	29226	23608	15873
40	63525	94441	77033	12147	51054	49955	58312	76923	96071	05813
41	47606	93410	16359	89033	89696	47231	64498	31776	05383	39902
42	52669	45030	96279	14709	52372	87832	02735	50803	72744	88208
43	16738	60159	07425	62369	07515	82721	37875	71153	21315	00132
44	59348	11695	45751	15865	74739	05572	32688	20271	65128	14551
45	12900	71775	29845	60774	94924	21810	38636	33717	67598	82521
46	75086	23537	49939	33595	13484	97588	28617	17979	70749	35234
47	99495	51434	29181	09993	38190	42553	68922	52125	91077	40197
48	26075	31671	45386	36583	93459	48599	52022	41330	60651	91321
49	13636	93596	23377	51133	95126	61496	42474	45141	46660	42338

Source: Rand Corporation (1955) table of random numbers